REMARKS

This application has been reviewed in light of the Office Action mailed on October 23, 2003. Claims 1-31 are pending in the application with Claims 1, 13, 21 and 23 being in independent form. By the present amendment, Claims 1, 2, 6, 13, 15, 21 and 23 have been amended. No new matter or issues are believed to be introduced by the amendments.

Claims 6 and 15 have been amended to overcome the objections to these claims noted in the Office Action. In particular, Claims 6 and 15 have been amended by replacing the phrase "about 60.degree." with the phrase "about 60°." Accordingly, withdrawal of the objections is respectfully requested.

I. Rejection of Claims 1-9 and 13-22 Under 35 U.S.C. §103(a)

In the Office Action, Claims 1-9 and 13-22 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,814,827 issued to Katz on September 29, 1998 ("Katz"). Applicants have amended independent Claims 1, 13 and 21 in a manner which is believed to better define Applicants' invention and which obviates the rejection.

Specifically, Applicants' Claim 1 has been amended to recite "An apparatus for an optical code reader comprising: a first solid state photo sensor array having cells arranged in a line along a plane of the array for producing electronic signals corresponding to an image of at least a portion of a target optical code symbol; a second solid state photo sensor array having cells arranged in a line along a plane of the second solid state photo sensor array, vertical planes extending infinitely from the planes of the first and second solid state photo sensor arrays form an infinitely vertical volumetric space between each other, the second sensor array for producing electronic signals

corresponding to at least a portion of a target optical code symbol; and electronic analog to digital converter means for converting electronic signals from at least one of said sensor arrays to bit content of a target optical code symbol to be read." (Emphasis added)

Applicants' Claim 13 has been amended to recite "A sensor assembly for an apparatus for reading a target one-dimensional optical code symbol whose principle axis has an arbitrary orientation in a plane generally parallel to an image plane of the sensor assembly comprising: a first solid state photo sensor array having cells arranged in a generally straight line along a plane for producing an electronic signal corresponding to at least a portion of an image of the code symbol; a second solid state photo sensor array having cells arranged in a generally straight line along a plane of the second solid state photo sensor array for producing an electronic signal corresponding to at least a portion of an image of the code symbol; a third solid state photo sensor array having cells arranged in a generally straight line along a plane of the third solid state photo sensor array for producing an electronic signal corresponding to at least a portion of an image of the code symbol, wherein vertical planes extending infinitely from the planes of the first, second and third solid state photo sensor arrays form a substantially enclosed volumetric space with respect to one another; means for focusing images of the target code symbol on each of the three sensor arrays; and means for converting to digital form electronic signals from the sensor assembly." (Emphasis added)

Applicants' Claim 21 has been amended to recite "An apparatus for an optical code reader comprising: at least three one-dimensional solid state sensor elements each having an array of cells, each array located along a plane, wherein an infinite extension of each plane along both directions of a horizontal axis thereof forms at least one

intersecting angle with respect to one another; electronic analog to digital converters associated with each one-dimensional solid state sensor elements for converting electronic signals from the photo sensors to digital form; and means for selecting a signal from one of the analog to digital converters representative of the data content of a one-dimensional target bar code whose principle axis is sufficiently aligned with the axis of the corresponding array to permit data to be extracted." (Emphasis added)

Katz is directed to a scanner which achieves an extended depth of focus by employing a multifocal optical system. The scanner comprises a collection optical system for collecting radiation reflected from objects in its field of view along plural different optical axes and optical detector means for detecting radiation collected by the collection optical system along each of the plural different optical axes and for generating electrical output signals indicative thereof. The optical detector means has separate detecting units corresponding to the number of different optical axes of the optical system. With reference to FIGS. 2 and 3, detectors A, B and C are arranged parallel to one another. Vertical planes of the three detectors are therefore also parallel to one another. Horizontally extending each plane of the three detectors along both directions of a horizontal axis also maintains a parallel relationship between each extended plane.

Accordingly, in contrast to the recitations of Applicants' Claim 1, vertical planes extending infinitely from the planes of two detectors (assuming arguendo that the two detectors are analogous to Applicants' first and second solid state photo sensor arrays) do not form an infinitely vertical volumetric space between each other. Additionally, in contrast to the recitations of Applicants' Claim 13, vertical planes extending infinitely from the planes of three detectors do not form a substantially enclosed volumetric space

with respect to one another. Also, in contrast to the recitations of Applicants' Claim 21, an infinite extension of each plane of the three detectors along both directions of a horizontal axis does not form at least one intersecting angle with respect to one another.

The Office Action further states that the "art of Katz teaches that the sensor arrays may be of different position planes." Applicants continue to respectfully request the Examiner to cite a specific reference which discloses sensor arrays positioned at different angles or at different planes.

Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claims 1, 13 and 21 and allowance thereof are respectfully requested.

Applicants' dependent Claims 2, 6, 7, 15 and 22 contain patentable subject matter. It is respectfully submitted that Katz does not disclose or suggest three sensor arrays, in which vertical planes extending infinitely from a plane of one of the three sensor arrays substantially encloses an infinitely vertical volumetric space, where the volumetric space is formed by vertical planes extending infinitely from the planes of the other two sensor arrays, as recited by Applicants' Claim 2. Further, it is respectfully submitted that Katz does not disclose or suggest lines of three photo sensor arrays being oriented at an angle of about 60 degrees with respect to one another, as recited by Applicants' Claims 6 and 15. Further still, it is respectfully submitted that Katz does not disclose or suggest lines of each of three photo sensor arrays lying along one side of an equilateral triangle, respectively, as recited by Applicants' Claim 7. Therefore, Applicants respectfully submit that the limitations of Claims 2, 6, 7 and 15, taken together with the limitations of Claims 1 or 13, are patentably distinct over the disclosure of Katz.

Additionally, Katz does not disclose or suggest data content from more than one sensor element being combined to decode a bar code that is positioned such that only a part of the bar code is readable by each sensor element, as recited by Applicants' Claim 22. Therefore, Applicants respectfully submit that the limitations of Claim 22, taken together with the limitations of Claim 21, are patentably distinct over the disclosure of Katz.

Applicants' dependent Claims 3-5, 8, 9, 14 and 16-20, as well as dependent Claims 2, 6, 7, 15 and 22, depend from either Claims 1, 13 or 21, and therefore include the limitations of either Claims 1, 13 or 21. Therefore, for at least the same reasons given above for Claims 1, 13 and 21, Claims 2-9, 14-20 and 22 are believed to be allowable over the cited reference. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claims 2-9, 14-20 and 22 and allowance thereof are respectfully requested.

II. Rejection of Claims 10-12 Under 35 U.S.C. §103(a)

Claims 10-12 were rejected under 35 U.S.C. §103(a) over Katz in view of U.S. Patent No. 5,920,061 issued to Feng on July 6, 1999 ("Feng").

Applicants' dependent Claims 10-12 depend from Claim 1, and therefore include the limitations of Claim 1. Therefore, for at least the same reasons given above for Claim 1, Claims 10-12 are believed to be allowable over the cited references, taken alone or in combination. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claims 10-12 and allowance thereof are respectfully requested.

III. Rejection of Claims 23-31 Under 35 U.S.C. §103(a)

Claims 23-31 were rejected under 35 U.S.C. §103(a) over Katz as modified by Feng, and further in view of U.S. Patent No. 5,818,028 issued to Meyerson et al. on October 6, 1998 ("Meyerson et al.").

Applicants have amended independent Claim 23 in a manner which is believed to better define Applicants' invention and which obviates the rejection. Claim 23 has been amended to include limitations similar to the limitations of Claim 21.

Specifically, Applicants' Claim 23 has been amended to recite "An optical code reader comprising: a gun-shaped housing comprising a head portion containing a sensor assembly for reading an optical code located forward of and in the vicinity of an optical axis of a sensor assembly, said sensor assembly including at least two sensor elements each having an array of cells, each array located along a plane, wherein an infinite extension of each plane of the at least two sensor elements along both directions of a horizontal axis thereof forms at least one intersecting angle with respect to one another, said housing further comprising a handle portion sloping backwardly and downwardly from the head portion, said handle portion having a trigger for actuating the optical code reader; and a circuit board generally perpendicular to the optical axis of the sensor assembly extending through the head portion and through at least a portion of the length of the handle portion of the housing for carrying the sensor assembly." (Emphasis added)

Katz does not disclose or suggest at least the newly added limitations to Claim 23. Specifically, as mentioned above with reference to Applicants' Claim 21, Katz does not disclose or suggest an infinite extension of each plane of at least two detectors (assuming arguendo that the at least two detectors are analogous to Applicants' at least two sensor

elements) along both directions of a horizontal axis forms at least one intersecting angle with respect to one another, as recited by Applicants' Claim 23.

Feng and Meyerson et al., taken alone or in combination, do not cure the deficiencies of Katz. Feng and Meyerson et al. do not disclose or suggest at least the newly added limitations to Claim 23. Feng and Meyerson et al., taken alone or in combination, do not disclose or suggest an infinite extension of each plane of at least two sensor elements along both directions of a horizontal axis forms at least one intersecting angle with respect to one another, as recited by Applicants' Claim 23.

Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claim 23 and allowance thereof are respectfully requested. Applicants' dependent Claims 24-31 depend from Claim 23, and therefore include the limitations of Claim 23. Therefore, for at least the same reasons given above for Claim 23, Claims 24-31 are believed to be allowable over the cited references. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claims 24-31 and allowance thereof are respectfully requested.

IV. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that all claims presently pending in the application, namely, Claims 1-31, are believed to be in condition for allowance and patentably distinguishable over the art of record.

If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to call Applicants' undersigned attorney at the number indicated below.

Respectfully submitted,

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